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OFFICIAL NEWSLETTER OF THE INTEGRATED PEST MANAGEMENT RESEARCH, DEVELOPMENT AND APPLICATIONS PROGRAM
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Site, Stand and Host Characteristics of SPB Infestations Bulletin is Off Press

A new publication, "Site, Stand, and Host Characteristics of Southern Pine Beetle Infestations" is off the press and is available upon request.

Technical Bulletin 1612 details the results of a comprehensive research effort sponsored by the Expanded Southern Pine Beetle Research and Applications Program (ESPBRAP). The principal objective of the work was to identify site, stand, and host conditions associated with southern pine beetle (SPB) infestations. This information will serve as the basis for ranking susceptibility of stands to SPB attack. It will also aid in the development of silvicultural recommendations for reducing beetle damage.

Seven research teams collected a standard set of site, tree and stand data from more than 3,300 infested and uninfested plots. Geographic replication of the studies was considered essential since different factors were thought to predispose trees and stands to beetle attack in the different regions.

This bulletin presents the methodology and summarizes results from the Southwide projects.* Findings should be valuable to future research on beetle-host-environmental relationships and basic silviculture, and to pest control specialists and forest managers as well.

Investigators involved in the Coordinated Regional Project were:

R. P. Belanger and G. E. Hatchell, Southeastern Forest Experiment Station, Athens, Ga.; R. R. Hicks, Jr., K. G. Watterston, J. E. Coster, and J. E. Howard, School of Forestry, Stephen F. Austin State University, Nacogdoches, Tex.; T. T. Ku, J. M. Sweeney, and V. B. Shelburne, Department of Forestry, University of Arkansas, Monticello, Ark.

R. J. Kushmaul, M. D. Cain, and W. F. Mann, Southern Forest Experiment Station, Pineville, La.; P. L. Lorio, Jr., and R. A. Sommers, Southern Forest Experiment Station, Pineville, La.,; T. E. Maki, D. W. Hazel, and J. R. Hall, Department of Forestry, North Carolina State University, Raleigh, N.C.

R. L. Porterfield and C. E. Rowell, Department of Forestry, Mississippi State University, Mississippi State, Miss.; J. M. Skelly, S. A. Alexander, and R. S. Webb, Department of Plant Pathology and Physiology, Virginia Polytechnic Institute and State University, Blacksburg, Va.

Copies of Technical Bulletin 1612 may be obtained by writing Information and Publications Services, Southern Forest Experiment Station, 701 Loyola Ave., New Orleans, La. 70113, or by phoning 504-589-3935.

*The regional site/stand data file has been described in SPB Fact Sheet No. 11. This fact sheet can be obtained by writing Information Center, USFS, Rm. 816, 1720 Peachtree Rd., NW, Atlanta, Ga. 30367.

A Technique for Field Testing Insecticides

Insecticides may be evaluated for long term preventive control of the southern pine beetle (SPB), and other bark beetles using the following technique:

Bolts are removed from sprayed trees, taken to active SPB infestations, and hung on trees near the active front of the infested area. The bolts are baited with the synthetic attractant, frontalure, to insure beetle attacks. Efficacy is evaluated by reduction in numbers of successful attacks and in SPB egg gallery construction relative to untreated checks.

The technique offers flexibility in selection of beetle infestations and reliability in securing sufficient numbers of beetles to adequately test a candidate insecticide.

BERISFORD, C. W., U. E. BRADY, R. F. MIZELL, J. H. LASHOMB, G. E. FITZPATRICK, I. R. RAGENOVICH, and F. L. HASTINGS.

1980. A technique for field testing insecticides for long-term prevention of bark beetle attack. J. Econ. Entomol. 73:694–697.

Mason Shifts to Forest Service as IPM Program Research Coordinator

Dr. Garland Mason has been hired by the Forest Service to serve as the fulltime Research Coordinator for the Integrated Pest Management RD&A Program, according to Dr. Robert C. Thatcher, IPM Program Manager. The appointment was effective July 26, 1981.

The move involved no relocation—simply a reassignment from an Intergovernmental Personnel Act agreement between the Science & Education Administration and Stephen F. Austin State University to the Forest Service, Southern Forest Experiment Station. Prior to his new assignment, Dr. Mason had served as Research Coordinator for the IPM Program for 1 year under provisions of the IPA agreement, according to Dr. Thatcher.

In his new capacity, Dr. Mason will continue to plan, coordinate, and monitor research and development studies in the IPM Program. He will work closely with the research community in Federal, State, university, and industrial organizations.

Dr. Mason was born in Amherst, Texas. He received his BF and MF degrees from Stephen F. Austin State University in Nacogdoches, Texas (1966 and 1967, respectively), and his PhD. from Texas A&M University (1975). He is married and has three children. Garland has worked in various positions, including Head of the Section in the Texas Forest Service Pest Control Section, and was on the faculty of the School of Forestry at Stephen F. Austin State University for 5 years. He has been particularly interested in aerial risk rating for southern pine beetle.

"We are pleased to have Garland on our management team," Dr. Thatcher said.

More SPB Handbooks, Fact Sheets are Off the Press

Four more publications related to the Southern Pine Beetle are now available. They can be obtained from the Information Center, U.S. Forest Service, Room 816, 1720 Peachtree Rd., NW, Atlanta, Ga. 30367.

1. Levi, M.P. 1981. A guide for using beetle-killed southern pine based on tree appearance. U.S. Dep. Agric., Comb. For. Pest R&D Prog., Agric. Hdbk. No. 572. 19 p.
2. Swain, K.M., Sr., and M.C. Remion. 1981. Direct control methods for the southern pine beetle. U.S. Dep. Agric., Comb. For. Pest R&D Prog., Agric. Hdbk. No. 575. 15 p.
3. Belanger, R. P., and B. F. Malac. 1980. Silviculture can reduce losses from the southern pine beetle. U.S. Dep. Agric., Comb. For. Pest R&D Prog., Agric. Hdbk. No. 576. 17 p.
4. Nebeker, T. E. 1981. How to interpret radiographs of bark samples from beetle-infested pines. U.S. Dep. Agric., Comb. For. Pest R&D Prog., Agric. Hdbk. No. 577. 14 p.

In addition, the following SPB Fact Sheets are available and can be obtained from the same source.

Southern Pine Beetle Fact Sheet No. 16. Cut-and-leave. USDA For. Serv., S&PF For. Bull. SA-FB/P34. Jan. 1981. 2 p.

Southern Pine Beetle Fact Sheet No. 17. Chemical control. USDA For. Serv., S&PF For. Bull. SA-FB/P35. Jan. 1981. 2 p.

Southern Pine Beetle Fact Sheet No. 18. Pile-and-burn. USDA For. Serv., S&PF For. Bull. SA-FB/P36. Jan. 1981. 1 p.

Southern Pine Beetle Fact Sheet No. 19. A method for assessing the impact of southern pine beetle damage on esthetic values. USDA For. Serv., S&PF For. Bull. SA-FB/P37. May 1981. 1 p.

Southern Pine Beetle Fact Sheet No. 20. Economic impact of the southern pine beetle on recreation—one approach. USDA For. Serv., S&PF For. Bull. SA-FB/P38. May 1981. 2 p.

Southern Pine Beetle Fact Sheet No. 21. Silviculture: A means of preventing losses from the southern pine beetle. USDA For. Serv., S&PF For. Bull. SA-FB/P40. June 1981. 2 p.

TO OUR READERS

Our 280-page book entitled "The Southern Pine Beetle" was published in October 1980. For some unknown reason, the publication date did not appear in the book.

Estimation of Southern Pine Beetle Gallery Length

A technique is presented that requires no direct measure of gallery length to estimate the total gallery length. Required to obtained the estimate are: (1) an appropriate model for time of year, sample period, and host, (2) tree diameter at breast height, (3) length of infested bole, (4) total tree height, and (5) inner bark thickness. The technique is accurate, less time consuming, and less expensive than direct estimation techniques.

NEBEKER, T. E., O. P. HACKNEY, and R. R. HOCKING. 1981. Indirect estimation of southern pine beetle (Coleoptera: Scolytidae) gallery length utilizing host characteristics. Can. Entomol. 113:199–203.

T. E. NEBEKER, Department of Entomology, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Mississippi State, MS 39762.

Oops! We Goofed

ERRATA—Southern pine beetle handbooks

The following corrections should be made in your copy of the handbooks:

No. 563. How to identify common insect associates of the southern pine beetle.

1. p. 8, 2nd paragraph, line 4: (20 mm) should be (10 mm).
2. p. 18, Fig. 30: This female is not *P. flavicornis F.* She is *P. compositus* Say.

No. 575. Direct control methods for the southern pine beetle.

1. p. 9: Figure 3 caption should read — Red area illustrates a buffer strip around the active head of an infestation. Yellow trees are freshly attacked, red trees contain developing brood; bare trees are vacated.

No. 576. Silviculture can reduce losses from the southern pine beetle.

1. p. 12, 1st column, line 6: Change (fig. 11) to (fig. 10).
2. p. 13, 2nd paragraph, lines 2 and 3: Change (fig. 13) to (fig. 12).

Testing Insecticides for Effectiveness Against the Southern Pine Beetle

Twelve insecticides were tested for remedial efficacy against *Dendroctonus frontalis* Zimmermann. All of them except carbophenothion were at least as effective as the recommended insecticide, lindane. At 1 and 2%, chlorphyrifos, chlorpyrifos-methyl, fenitrothion, primiphos-ethyl, etrimphos, and a microencapsulated formulation of phosmet were significantly better than lindane at the registered dose.

JONES, A. S., F. L. HASTINGS, and C. J. KISLOW.

1980. Evaluation of 12 insecticides for remedial efficacy against southern pine beetle adults. J.Econ. Entomol. 73:736–738.

A. S. JONES, USDA Forest Service, Southeastern Forest Experiment Station, Forestry Sciences Laboratory, Research Triangle Park, N.C.

Design Award for ESPBRAP Cover

The Art Directors Club of Metropolitan Washington has honored the designers who created the cover of *Modeling Southern Pine Bettle Populations,* a black-and-white symposium proceedings (USDA Tech. Bull. No. 1630) published last year by the Expanded Southern Pine Beetle RD&A Program. The cover features three rows of beetles whose bodies are illustrated with black and white circles. It was designed by Dorothy Rudzik, of William Kircher and Associates, under the art direction of USDA illustrator Debbie Shelton.

The publication received a merit award in the Art Directors Club's thirty-second annual exhibition, and the cover has been reproduced in their catalog along with other winners from the greater D.C. area. Copies of the winning publications were displayed this summer at the gallery of the American Institute of Architects in Washington.

Insect & Disease Training in Georgia

Twenty-three industrial and consulting foresters attended a 3-day training session July 6–8 at the University of Georgia that dealt with the recognition, impact, and management of forest insects and diseases of the Southeast. The training was sponsored by the Council on Continuing Education for Foresters. Two program investigators assisted with this training. Dr. Wayne Berisford, Professor, Department of Entomology, University of Georgia, reviewed the biology and direct control of the southern pine beetle and Roger Belanger, Principal Silviculturist, SE Forest Experiment Station, discussed stand hazard rating systems and silvicultural control.

Chlorpyrifos and Reldan Compared With Lindane for SPB Control*

Field tests with selected insecticides for preventive and remedial control of the southern pine beetle were conducted in 1975 and 1976. In preventive control tests, 1 and 2% chlorpyrifos (Dursban® formulation), 1 and 2% chlorpyrifos-methyl (Reldan® formulation) compared favorably with 0.5% lindane at 2 and 4 months posttreatment. At later intervals, lindane was more effective than either chlorpyrifos or chlorpyrifos-methyl.

The persistence of lindane, chlorpyrifos, and chlorpyrifos-methyl was compared to efficacy data from the preventive control studies. Results indicate that lindane dissipated from bark more rapidly than either chlorpyrifos, or chlorpyrifos-methyl. As a remedial control agent, 1 and 2% chlorpyrifos compared favorably with 0.5% lindane. Selected extender-sticker adjuvants were only slightly effective in improving the persistence of chlorpyrifos and lindane on bark.

BRADY, U. E., C. W. BERISFORD, T. L. HALL, and J. S. HAMILTON.

1980. Efficacy and persistence of chlorpyrifos, chlorpyrifos-methyl, and lindane for preventive and remedial control of the southern pine beetle. J. Econ. Entomol. 73:639–641.

*Chlorpyrifos and lindane are registered for SPB control.

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1980. Studies of declining and low level populations of the southern pine beetle in North Carolina. *In:* Proc. Work Conf. on Population Dynamics of Forest Insects at Low Levels. Aug. 9–10, 1979. F.P. Hain, Ed. North Carolina State Univesity, Raleigh.

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1980. A framework for modeling endemic-epidemic transitions in southern pine beetle. *In:* Proc. Work Conf. on Population Dynamics of Forest Insects at Low Levels. Aug. 9–10, 1979. F. P. Hain, Ed. North Carolina State University, Raleigh.

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Kinn, D. N.
1980. Mutualism between *Dendrolaelaps neodisetus* and *Dendroctonus frontalis*. Environ. Entomol. 9:756–758.

Bunt, W. D., J. E. Coster, and P. C. Johnson.
1980. Behavior of the southern pine beetle on the bark of host trees during mass attack. Ann. Entomol. Soc. Amer. 73:647–652.

Buhyoff, G. J., and J. D. Wellman.
1980. The specification of a non-linear psychophysical function for visual landscape dimensions. J. Leisure Sci. 3:257–272.

Coulson, R. N., P. E. Pulley, D. N. Pope, W. S. Fargo, and L. J. Edson.
1980. Continuous population estimates for *Dendroctonus frontalis* Zimm. (Coleoptera:Scolytidae) occurring in infestations. Res. Popn. Ecol. 22:117–135.

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1980. Replication of a scenic preference function. For. Sci. 26:227–230.

Birch, M. C., P. Svihra, T. D. Paine, and J. C. Miller.
1980. Influence of chemically mediated behavior on host tree colonization by four cohabiting species of bark beetles. J. Chem. Ecol.:395–414.

Ku, T. T., J. M. Sweeney, and V. B. Shelburne.
1980. Site and stand conditions associated with southern pine beetle outbreaks in Arkansas—a hazard-rating system. South. J. Applied For. 4:103–106.

McCarty, F. A., P. M. Billings, J. V. Richerson, T. L. Payne, and L. J. Edson.
1980. Response of the southern pine beetle to behavioral chemicals in the laboratory. J. Ga. Entomol. Soc. 15:307–317.

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1980. Attack and survival of *Dendroctonus frontalis* in relation to weather during three years in east Texas. Environ. Entomol. 9:222–229.

Pabst, G. S., and P. P. Sikorowski.
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